

Why Use Cases?

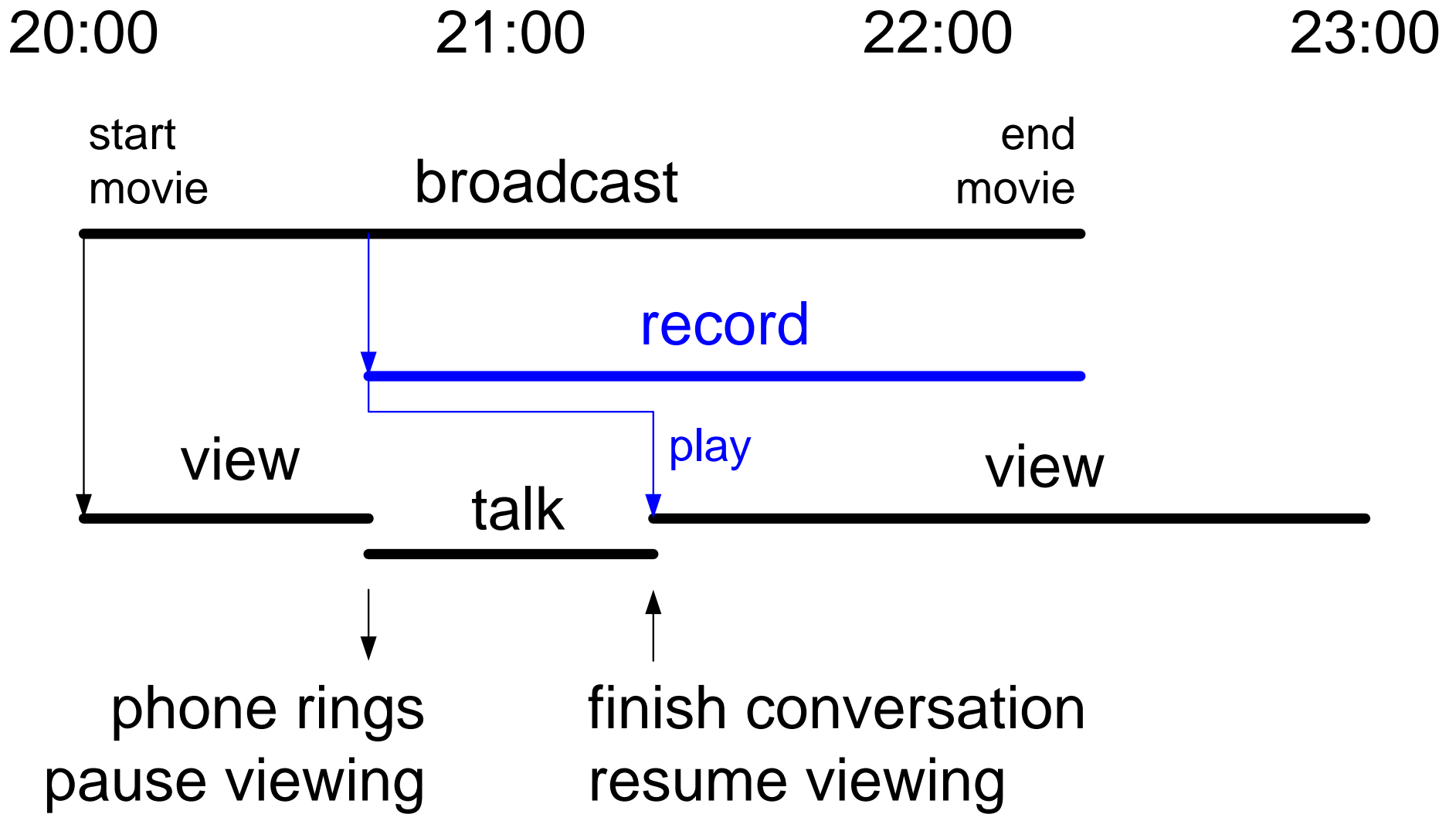
Supports or is part of specification

by providing specific data in user perspective

Facilitates analysis and design

Facilitates verification and testing

Example Time Shift recording

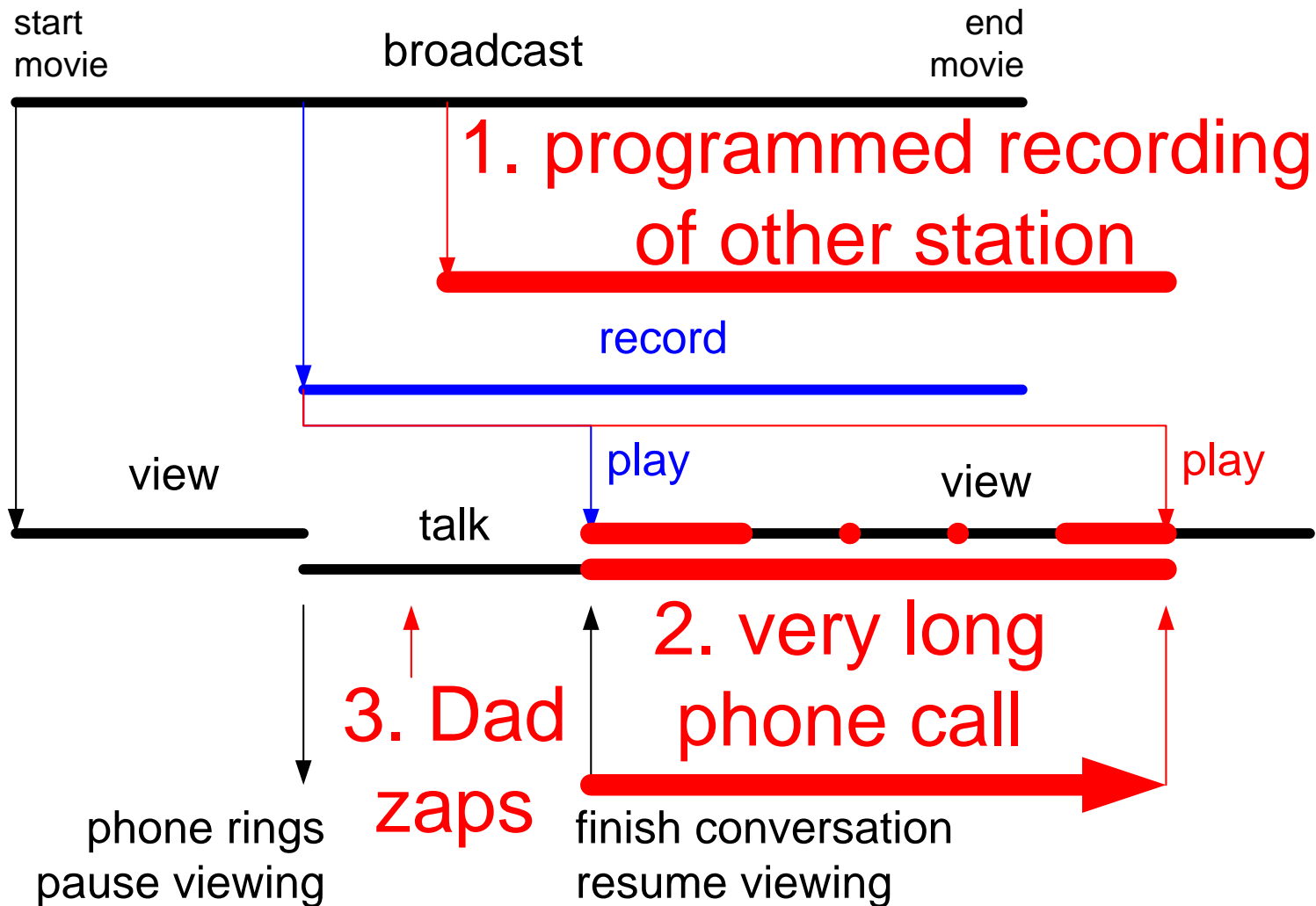


Construction limits intrude in User Experience

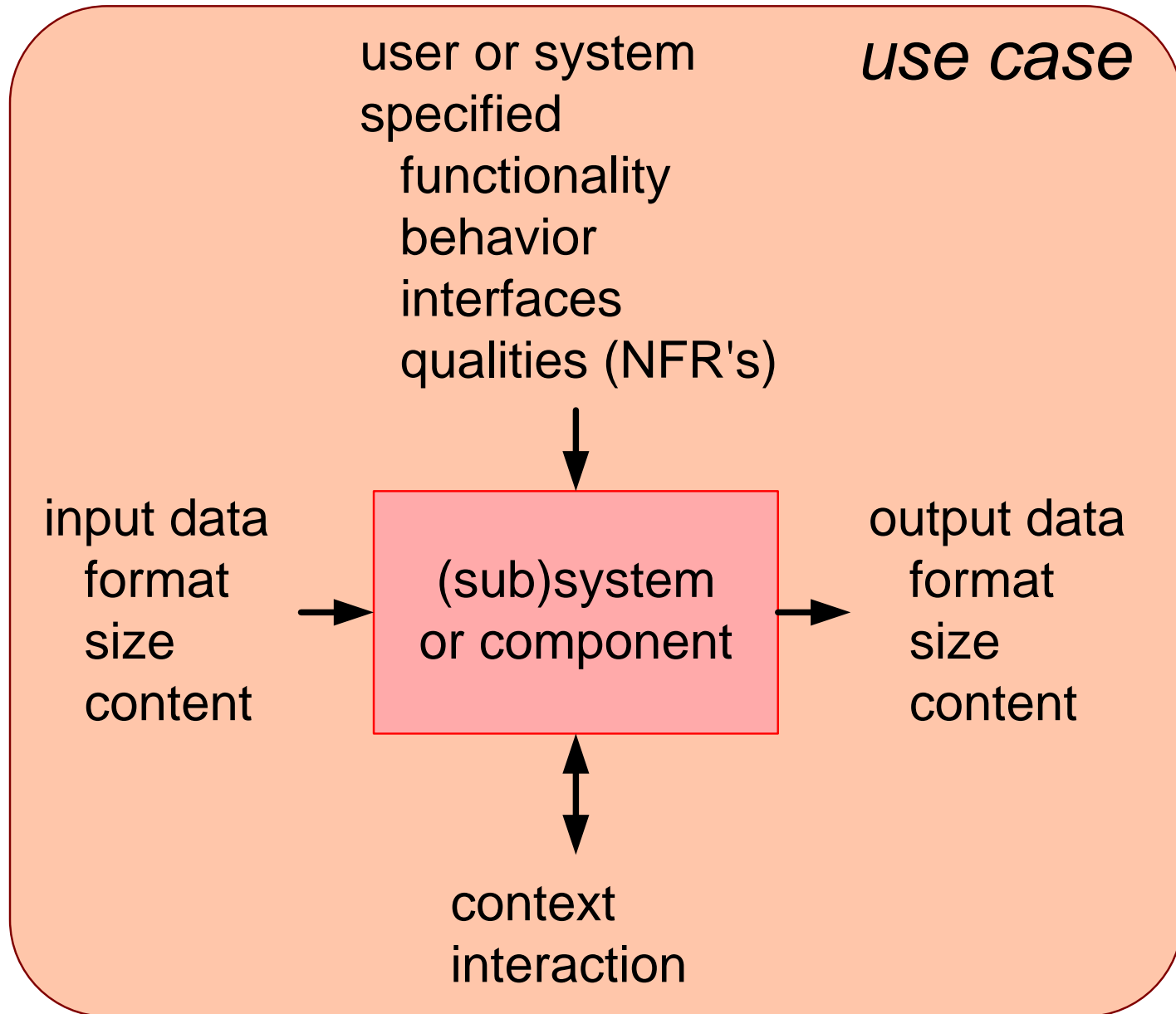
- number of tuners
- number of simultaneous streams (recording and playing)
- amount of available storage
- management strategy of storage space

What if?

20:00 21:00 22:00 23:00



Content of a Use Case



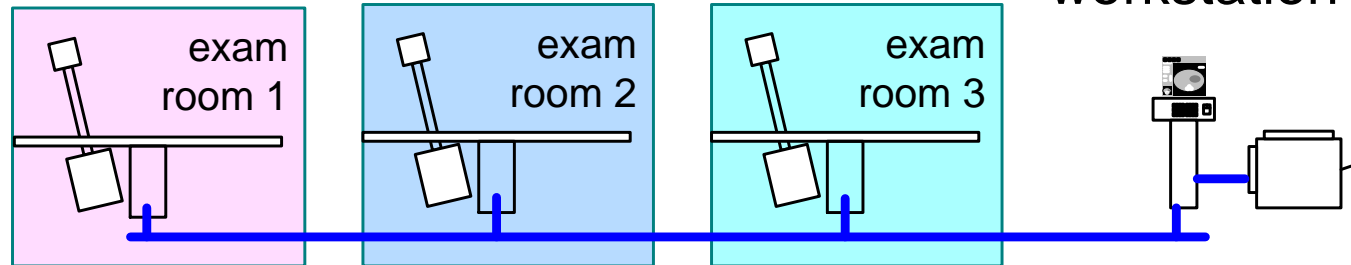
Example personal video recorder use case contents

typical use case(s)	worst case, exceptional, or change use case(s)
<p data-bbox="197 500 953 548">interaction flow (functional aspects)</p> <ul data-bbox="247 558 903 799" style="list-style-type: none"><li data-bbox="247 558 714 597">select movie via directory<li data-bbox="247 607 453 646">start movie<li data-bbox="247 656 693 695">be able to pause or stop<li data-bbox="247 704 903 743">be able to skip forward or backward<li data-bbox="247 753 621 792">set recording quality	<p data-bbox="1121 500 1331 548">functional</p> <ul data-bbox="1171 558 1755 743" style="list-style-type: none"><li data-bbox="1171 558 1755 597">multiple inputs at the same time<li data-bbox="1171 607 1533 646">extreme long movie<li data-bbox="1171 656 1717 695">directory behaviour in case of<li data-bbox="1222 704 1730 743">extreme many short movies
<p data-bbox="197 844 877 948">performance and other qualities (non-functional aspects)</p> <ul data-bbox="247 958 936 1143" style="list-style-type: none"><li data-bbox="247 958 793 997">response times for start / stop<li data-bbox="247 1006 936 1045">response times for directory browsing<li data-bbox="247 1055 684 1094">end-of-movie behaviour<li data-bbox="247 1104 932 1143">relation recording quality and storage	<p data-bbox="1121 844 1423 883">non-functional</p> <ul data-bbox="1171 893 1940 1143" style="list-style-type: none"><li data-bbox="1171 893 1793 932">response time with multiple inputs<li data-bbox="1171 941 1776 980">image quality with multiple inputs<li data-bbox="1171 990 1570 1029">insufficient free space<li data-bbox="1171 1039 1940 1078">response time with many directory entries<li data-bbox="1171 1088 1780 1127">replay quality while HQ recording

Example of Quantification of Typical Use Case

3 examination rooms connected to

1 medical imaging workstation + printer

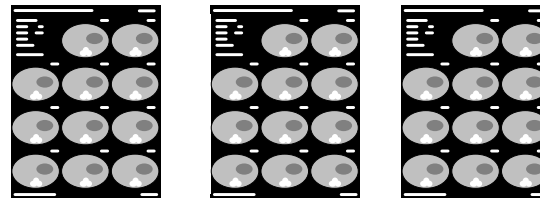


examination room: average 4 interleaved examinations / hour

image production: 20 1024^2 8 bit images per examination

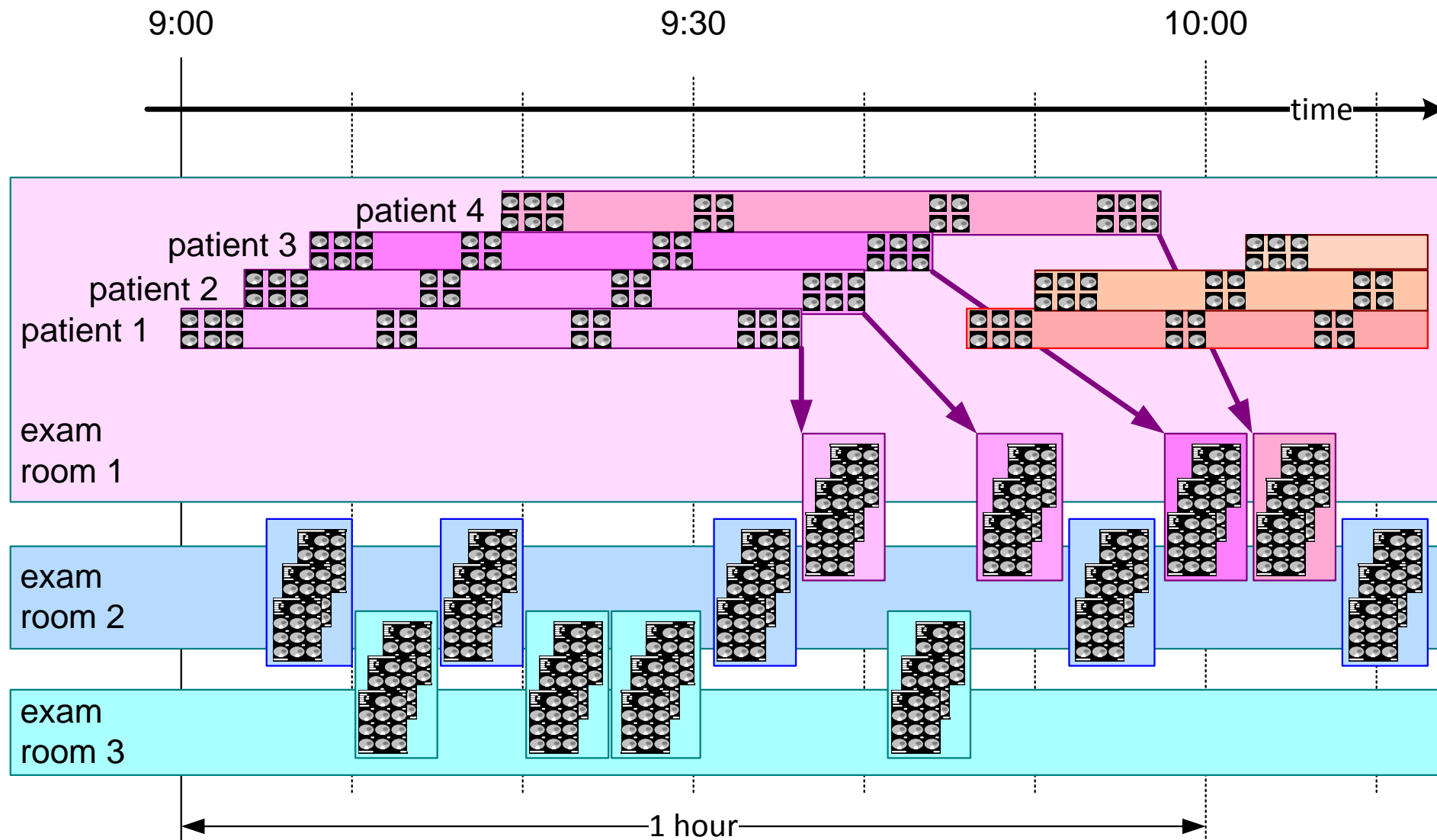


film production: 3 films of 4k*5k pixels each



high quality output
(bi-cubic interpolation)

Timing of this Use Case



Recommendations for working with use cases

- + combine related functions in one use case
- do not make a separate use case for every function
- + include non-functional requirements in the use cases

- + minimise the amount of required *worst case* and *exceptional use cases*
- excessive amounts of use cases propagate to excessive implementation efforts
- + reduce the amount of these use cases in steps
- a few well chosen *worst case* use cases simplifies the design